Bull. Southern California Acad. Sci.
117(3), 2018, pp. 180–183

Asemichthys taylori Gilbert, 1912, Spinynose Sculpin, New to the California Marine Fauna

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On 21 June 2017, Author K. Lee, diving in 29 m of water at Esalen Pinnacle (36°07.6′N, 121°39′W), central California, photographed a fish we have identified as *Asemichthys taylori* Gilbert, 1912 [referred to by some authorities as *Radulinus taylori* (Gilbert 1912)], the spinynose sculpin (Fig. 1). We identified this fish through a combination of characters that we have compared with *Radulinus asprellus* Gilbert, 1890 (slim sculpin) and *Radulinus boleoides* Gilbert, 1898 (darter sculpin), the two species *A. taylori* most closely resembles (Table 1). The most diagnostic characters for this specimen are possession of 1) a dark lower half of the head, 2) a light band behind the eye, and 3) blue edging to some of the saddles (Table 1). Other characters that we can gauge from the photograph, including number of pectoral rays, number of scale rows behind the eye, and the relation of orbit width into snout length, all tend to confirm our identification (Table 1). Visual comparison of an image of *R. asprellus* (Figure 2) with both the central California and British Columbia fishes clearly demonstrates a range of differences including long nasal spines in *R. asprellus* (lacking in *A. taylori*), as well as a lack of the diagnostic characters listed above. Lastly, this specimen compares well with that of an *A. taylori* photographed within its previously known range in the San Juan Islands, Salish Sea (Fig. 3).

Asemichthys taylori was originally collected in Departure Bay, Vancouver Island (about 49°12′N, 123°58′W) (Gilbert 1912). All subsequent captures have occurred in a relatively restricted area from southeastern Alaska, at the junction of Sumner and Clarence straits off Strait Creek (56°12′N, 133°15′W) (Love et al. 2005), to Keystone Jetty, Whidbey Island, Puget Sound (Kent et al. 2011). This new record represents a geographic range extension of about 1,400 km (870 mi). The maximum size of this species is 7.4 cm (Peden and Wilson 1976) and its documented depth range is 5–27 m (min.: Peden and Wilson 1976; max.: this paper). An undocumented capture has been reported at a depth of 49 m (W.A. Palsson, pers. comm. to M.L.).

Relatively little is known of this species biology and behavior. In Washington State it typically occurs in the shallow subtidal on fragmented-shell bottoms adjacent to rock reefs (G.C. Jensen, pers. obs.) and is rarely taken in trawls. Spawning occurs at least during February and March in subtidal waters. At least in southern British Columbia spinynose sculpin exclusively lay their eggs in the nests of *Enophrys bison* Girard, 1854, the buffalo sculpin (Kent et al. 2011). Eggs are usually green in color, but may also be pink or orange. While it feed on a variety of crustaceans and bivalves, this species appears to be unique among cottids in ingesting large numbers of snails (Norton 1988). Upon capturing a snail, the sculpin punches holes in the gastropod's shell using specialized vomerine teeth.

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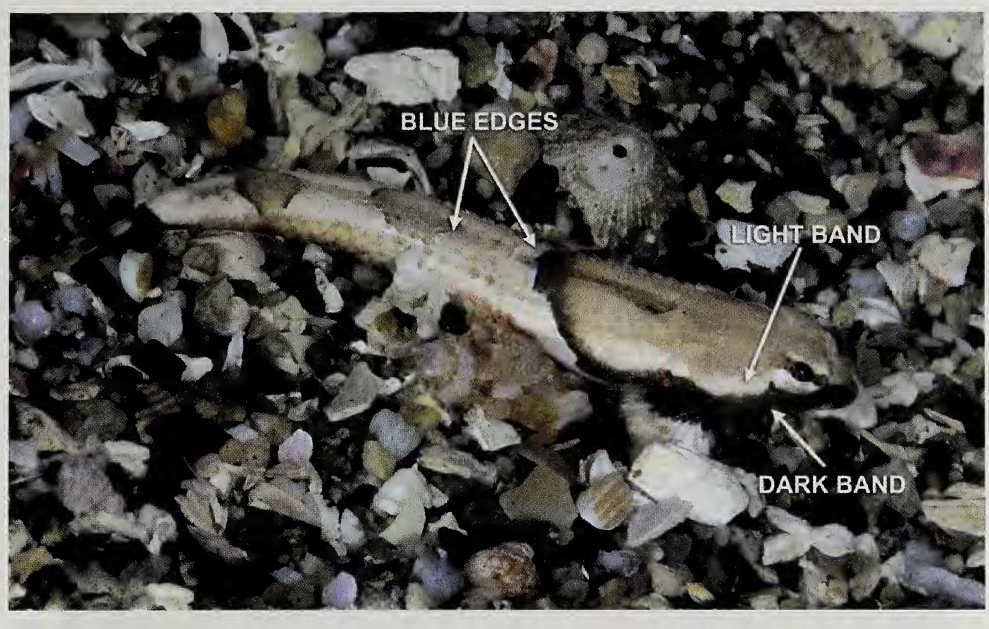

Fig. 1. *Asemichthys taylori* photographed in 29 m of water at Esalen Pinnacle (36°07.6′N, 121°39′W), central California by K. Lee. Three of the diagnostic characters are denoted.

It is likely that the Esalen Pinnacle fish was not an isolated expatriate. Rather, it is more likely that this diminutive, secretive, and economically unimportant fish, lying still and blending in to shell hash or sand, is rarely observed or caught. It is interesting to note that the one large collection of this species, 105 individuals from the San Juan Islands (Norton 1988), was made by a researcher who focused on capturing this species. Lastly, we acknowledge the possibility that this specimen might be an undescribed species that

Table 1. A comparison of diagnostic characters of *Asemichthys taylori*, *Radulinus asprellus*, and *R. boleoides* and the fish photographed.

	A. taylori	This Specimen	*R. asprellus*	*R. boleoides*
Dark lower half of head	Yes[1,2]	Yes	No[1]	No[1,2]
Light band behind eye	Often[1,2]	Yes	No[1,2]	No[1]
Pectoral rays	16–19[5]	17	17–20[4]	18–20[5]
Lateral line scales	34–36[3]	about 35	38–41[3]	39–40[3]
Scale rows behind eye	1–4[3]	Multiple	13	13
Some saddles edged in blue	Usually[2]	Yes	No[2]	—
Orbit width into snout length	1.16	0.7	0.7–1.0[7]	1.2–1.5[4]

[1]Lamb and Edgell (2010).
[2]Jensen (2014).
[3]Hart (1973).
[4]Bolin (1944).
[5]Ichthyoplankton Information System.
[6]Gilbert (1912) (based on a single specimen).
[7]Mecklenburg et al. (2002).

Fig. 2. *Asemichthys taylori* photographed at 12 m depth at Bordelais Islets (48°48.98′N, 125°13.9′W), Barkley Sound, British Columbia by G. C. Jensen. Note 1) dark lower half of the head, 2) light band behind the eye, and 3) blue edging to some of the saddles, characters identical to those in the Esalen Pinnacle fish.

Fig. 3. *Asemichthys asprellus* photographed at 18 m depth at Ayer's Point, Hood Canal, Washington by G. C. Jensen. Note the extremely long nasal spines that are absent in *A. taylori.*

is closely related to *A. taylori*. However, given the extreme similarity of this specimen to known *A. taylori* individuals we believe that scenario to be remote.

Acknowledgments

We thank Rick Feeney for confirming the identification of this specimen.

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